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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,796	07/20/2006	Gero Schollmeier	2004P00843WOUS	9376

87133 7590 07/17/2009

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EXAMINER	
ANDREWS, LEON T	

ART UNIT	PAPER NUMBER
2416	

MAIL DATE	DELIVERY MODE
07/17/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/586,796	SCHOLLMEIER ET AL.	
	Examiner	Art Unit	
	LEON ANDREWS	2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 July 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *17-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *17-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *7/20/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Abstract

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because it contains legal terminology such as 'means'. See MPEP § 608.01(b).

Abstract, lines 1-2 contains narrative to the Title.

Correction is required.

Oath of Declaration

2. The Oath of Declaration filed July 20, 2006 claiming Foreign Priority benefits under 35 U.S.C. 119(a)-(d), or 365(b) was not filed by applicant or received by the Patent Office. Also, PCT under 35 U.S.C. 120 was not disclosed or entered on the Oath of Declaration form.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

3. Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 17-31 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 17-31 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. While the claims recite a series of steps or acts to be performed, a statutory "process" under 35 U.S.C. 101 must (1) be tied to particular machine, or (2) transform underlying subject matter (such as an article or material) to a different state or thing. See page 10 in Re to Bilski 88 USPQ2d 1385. The instant claims are neither positively tied to a particular machine that accomplishes the claimed method steps nor transform underlying subject matter, and therefore do not qualify as a statutory process. The method including steps of providing, assigning and adjusting is broad enough that the claims cannot be completely performed

manually without a machine nor is any transformation apparent. Further, the steps are not being performed by a node of the network.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 17-27 and 30-40 are rejected under 35 U.S.C. 102 (e) by Tundlam et al. (Pub. No.: US 2003/0233472 A1).

Regarding Claims 17 and 31, Tundlam et al. discloses a method for improving traffic distribution (method for distributing data packets within a network node involves the utilization of a weighted function to dynamically distribute the data packets in a balanced fashion,

paragraph [0008], page 1, lines 1-4) in a communication network (communication network, paragraph [0022], page 2, lines 5-6) with multipath routing (Fig.2, router 200; routers that route data packets over one of more links, paragraph [0003], page 1, line 2), comprising:

providing a plurality of nodes and links (Fig. 2; routers that route data packets over one or more links, paragraph [0003], page 1, line 2; router 200 includes a plurality of data ports, paragraph [0026], page 2, lines3) in the communication network, wherein one node of the communication network having a plurality of outgoing links (Fig. 2; routers that route data packets over one or more links, paragraph [0003], page 1, line 2), which correspond to alternative paths for routing to a destination (routing data packets of one or more links to send and to deliver the packets to the ultimate destination, paragraph [0003], page 1, lines 4-10) and to which traffic to the destination can be distributed;

assigning to the outgoing links distribution (routing data packets of one or more links to send and to deliver the packets to the ultimate destination, paragraph [0003], page 1, lines 4-10) weightings for distribution of the traffic to the destination (utilization of weighted function to dynamically distribute the data packets a network node, paragraph [0008], page 1, lines 1-4); and

adjusting the distribution weightings according to a parameter related to the load (radio matrix of a load based on the weighted function over a plurality of data ports within the network and distributing data packets to the data ports based on the radio matrix, paragraph [0009], page 1, lines 3-7) or availability of the individual links (flows assigned to loaded ports, paragraph [0006], page 1, lines 4-5), with, in the case of two links with different parameter values (load assigned either overshoot or undershoot the traffic, paragraph [0006], page 1, lines 7-9), the distribution weighting of the link with the higher parameter value being reduced in relation to the

distribution weighting of the other link (new flows assigned to least loaded ports and the distribution ratio using the instant load tends to either undershoot the traffic, paragraph [0006], page 1, lines 4-9).

Regarding Claims 18 and 33, Tundlam et al. discloses the method, wherein the distribution weightings are adjusted according to a gap between the parameter for the respective link and a mean value for the parameter taken over the plurality of outgoing links (load balancing (mean value) based on current actual load on each port (link) and (a gap between) new flows assigned to (outgoing links) ports using calculated distribution ratio (weighting) assigning the flows to the least loaded (outgoing links) ports, paragraph [0006], page 1, lines 1-5).

Regarding Claims 19 and 34, Tundlam et al. discloses the method, wherein each of the plurality of links (data packets routed over one or more links delivering the packets to the ultimate destination, paragraph [0003], page 1, lines 2-10), the parameter value (radio matrix recomputed and iteratively ensuring that the flows get distributed evenly across the physical ports, paragraph [0033], page 3, lines 11-15) of which is different from the mean value (load balancing (mean value) based on current actual load on each port, paragraph [0006], page 1, lines 1-5), the distribution weightings are adjusted, with the distribution weightings of links (radio matrix of a load based on the weighted function over a plurality of data ports (links) within the network and distributing data packets to the data ports based on the radio matrix, paragraph [0009], page 1, lines 3-7), the parameter value of which is above the mean value, being reduced (flows assigned to the least loaded ports, paragraph [0006], page 1, lines 4-5) and the distribution weightings of

links, the parameter value of which is above the mean value being increased (distribution ratio overshoots the traffic, paragraph [0006], page 1, line).

Regarding Claims 20 and 35, Tundlam et al. discloses the method, wherein the distribution weightings are increased or reduced in proportion to the gap between the parameter value for the respective link and the mean value (load balancing based on current actual load on each port (link) and (a gap between) new flows assigned to (outgoing links) ports using calculated distribution ratio (weighting) assigning the flows to the least loaded (outgoing links) ports, paragraph [0006], page 1, lines 1-5).

Regarding Claim 21, Tundlam et al. discloses the method according to claim 17, further comprising iteratively adjusting the distribution weightings (adjusting alpha the weighted function gives a wide variation in behavior, paragraph [0028], page 2, lines 5-6), with an adjustment of the distribution weightings being carried out with each step (alpha is an adjustable constant weighted function that ranges in value for the NL_{ave}, P_{ave} and P_{inst} loads on each port, paragraph [0028], page 2, lines 1-4).

Regarding Claims 22 and 37, Tundlam et al. discloses the method, further comprising:

initializing the distribution weightings with start values (alpha, the weighted function ranges from 0.0 to 1.0, paragraph [0028], page 2, lines 3-5);

repeating the iteration (iteratively ensuring the flows get distributed across the ports, paragraph [0033], page 3, lines 13-15); and

using the distribution weightings resulting after the repeated iterations for routing (alpha an adjustable constant weighted function that ranges in value from 0.0 to 1.0 for the NL_{ave}, P_{ave} and P_{inst} loads on each port, paragraph [0028], page 2, lines 1-4; route logic keeps track of the present average and the array average loads on each port, the array is overwritten and contains load distribution among the ports in the router, paragraph [0029], page 2, lines 1-9) in the communication network to the destination (router with one or more links existing in the network routing packets to the ultimate destination, paragraph [0003], page 1, lines 4-10).

Regarding Claims 23 and 38, Tundlam et al. discloses the method, wherein when the distribution weightings are modified (adjusting alpha the weighted function gives a wide variation in behavior, paragraph [0028], page 2, lines 5-6), an attenuation variable that is a function of a number of the iteration is used (radio matrix iteratively used ensured the even distribution of flows across the ports, paragraph [0033], page 3, lines 13-15), bringing about a reduction in the modification of distribution weightings that increases with the number of iterations (adjusting alpha, the weighted function gives a wide variation of behavior from the most stable to the most sensitive with alpha ranging from 0.0 to 1.0, paragraph [0028], page 2, lines 5-7).

Regarding Claims 24 and 39, Tundlam et al. discloses the method, further comprising:

defining the parameter during the first iteration by an absolute traffic load (iteratively using the same ratio matrix ensuring that the flows get distributed evenly across the physical

ports, paragraph [0033], page 3, lines 13-15) or a relative traffic load related to a link bandwidth (Fig. 4, bandwidth on the ports, paragraph [0019], page 2, lines 1-2); and

modifying the value of the parameter during the iterations for the next iteration (radio matrix recomputed and iteratively ensuring that the flows get distributed evenly across the physical ports, paragraph [0033], page 3, lines 11-15), with the modification taking into account the traffic transported via the link to the destination (data packets routed over one or more links delivering the packets to the ultimate destination, paragraph [0003], page 1, lines 2-10).

Regarding Claims 25 and 40, Tundlam et al. discloses the method, further comprising adding the traffic transported via the link to the destination multiplied by a factor (NL_{ave}, new average load on each port where alpha (factor) an adjustable constant that ranges in value as used in equation, paragraphs [0027] and [0028], page 2, line 3 and 1-4 respectively).

Regarding Claim 26, Tundlam et al. discloses the method according to claim 17, wherein the traffic distribution in the communication network is recalculated using the resulting distribution weightings (using the calculated distribution ratio, new flows are assigned to ports, paragraph [0006], page 1, lines 3-5).

Regarding Claim 27, Tundlam et al. discloses the method according to claim 17,

wherein the method is implemented for a plurality of nodes in communication network, at which traffic distribution takes place (distributing data packets within a network node involves the utilization of a weighted function to dynamically distribute the data packets in a balanced

fashion, paragraph [0008], page 1, lines 1-4; communication network, paragraph [0022], page 2, lines 5-6; Fig.2, router 200; routers that route data packets over one of more links, paragraph [0003], page 1, line 2), and

wherein the method is implemented for a plurality of destinations (routing data packets of one or more links to send and to deliver the packets to the ultimate destination, paragraph [0003], page 1, lines 4-10).

Regarding Claim 30, Tundlam et al. discloses the method according to claim 17, wherein the method is implemented in a router (Fig. 2, 200).

Regarding Claim 32, Tundlam et al. discloses the method according to claim 31, wherein the value is based on the availability or load for the corresponding link (radio matrix (value) based on the weighted function of a load over data ports (link), paragraph [0009], page 1, lines 3-5).

Regarding Claim 36, Tundlam et al. discloses the method according to claim 31, further comprising repeating the adjustment step (iteratively using the same ratio matrix ensuring that the flows get distributed evenly across the physical ports, paragraph [0033], page 3, lines 13-15).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 28 is rejected under 35 U.S.C. 103(a) by Tundlam et al. in view of Anderson et al. (Pub. No.: US 2003/0223424 A1).

Regarding Claim 28, Tundlam et al. discloses the method according to claim 17, wherein the parameter is defined by an absolute traffic load (radio matrix based on weighted function of a load over data ports, paragraph [0009], page 1, lines 3-5), a relative traffic load related to the link bandwidth (Fig. 4, bandwidth on the ports, paragraph [0019], page 2, lines 1-2), a traffic-related costs incurred during link usage, a link availability (linked output ports are idle (available), paragraph [0005], page 1, line 18), a transit time of the respective link (after a period of time the array containing load distribution among ports (links) in the router is overwritten, paragraph [0029], page 2, lines 5-9; data streams directed to the corresponding ports (links) based on a predetermined period of time, paragraph [0030], page 3, lines 13-15) or a load capacity (distribute the transmission load evenly over the paths, paragraph [0005], page 1, line 2-3; current actual load on each port, paragraph [0006], page 1, lines 2-3) of the end nodes of the respective link.

Tundlam et al. fails to disclose costs incurred during link usage.

But, Anderson et al. discloses in Fig. 2, cost associated with each path, paragraph [0004], page 1, lines 7-8.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use Anderson et al.'s costs incurred during link usage because this would allowed the two paths to have the same cost and the splitting of traffic equally between both paths, paragraph [0004], page 1, lines 8-10.

Claims 29 is rejected under 35 U.S.C. 103(a) by Tundlam et al. in view of Jensen et al. (Pub. No.: US 2003/0198213 A1).

Regarding Claim 29, Tundlam et al. discloses the method according to claim 17,

wherein the distribution weightings of a node to a destination are standardized and this standardization is maintained during modification (routers that route the data packets over one or more links delivering the packets to the ultimate destination, paragraph [003], page 1, lines 2-10; distributing data packets within a node involves the utilization of a weighted average (standard) function to distribute the packets in a balanced fashion increasing the overall efficiency of the operation, paragraph [0008], page 1, lines1-8), and

wherein the distribution weightings for multipath routing are adjusted in the context of an ECMP (Equal Cost Multi Path) method.

Tundlam et al. fails to disclose multipath routing of equal cost multipath.

But, Jensen et al. discloses equal cost multi-path routing with link weights, paragraph [0029], page 3, lines 7-8.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use Anderson et al.'s multipath routing of equal cost multipath because this would allowed the routing of traffic with equal weight to be equally utilized, paragraph [00029, page 3, lines 5-7.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEON ANDREWS whose telephone number is (571)270-1801. The examiner can normally be reached on Monday through Friday 7:30 AM to 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rao S. Seema can be reached on (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Seema S. Rao/

Supervisory Patent Examiner, Art Unit

2416

LA/la
June 29, 2009